

AMENDMENTS TO THE CLAIMS

The following is a complete listing of revised claims with a status identifier in parenthesis.

LISTING OF CLAIMS

1. (Currently Amended) An encoding system for a multi-antenna transmitter, comprising:
 - a feed unit receiving data and producing N data streams, where N is at least two;
 - N encoders, each encoder receiving a respective one of the N data streams and producing an encoded data stream;
 - a multiple input multiple output (MIMO) encoder receiving the N encoded data streams and encoding the N encoded data streams into M output data stream for transmission by M antennas according to the double space time transmit diversity (DSTTD) algorithm, where M is at least two.
2. (Original) The system of claim 1, wherein each of the N encoders operates according to a same encoding algorithm
3. (Original) The system of claim 1, wherein one of the N encoders operates according to a first encoding algorithm, another of the N encoders operates according to a second encoding algorithm, and the first and second encoding algorithms are different.

4. (Canceled)
5. (Currently Amended) The system of claim 1, wherein N is two and M is four.
6. (Original) The system of claim 1, wherein N equals M.
7. (Original) The system of claim 1, wherein N is less than M.
8. (Original) The system of claim 1, wherein N is greater than M.
9. (Original) The system of claim 1, wherein the feed unit is a demultiplexer.
10. (Currently Amended) A decoding system for a multi-antenna receiver, comprising:
 - a multiple input multiple output (MIMO) decoder receiving T data streams and decoding the T data streams into N data streams according to the double space time transmit diversity (DSTTD) algorithm;
 - N decoders, each decoder receiving a respective one of the N data streams and producing N decoded data streams; and
 - a combiner combining the N decoded data streams into an output data stream.

11. (Original) The system of claim 10, wherein each of the N decoders operates according to a same decoding algorithm

12. (Original) The system of claim 10, wherein one of the N decoders operates according to a first decoding algorithm, another of the N decoders operates according to a second decoding algorithm, and the first and second decoding algorithms are different.

13. (Canceled)

14. (Original) The system of claim 10, wherein N equals M.

15. (Original) The system of claim 10, wherein N is less than M.

16. (Original) The system of claim 10, wherein N is greater than M.

17. (Original) The system of claim 10, wherein the combiner is a multiplexer.

18. (Currently Amended) An encoding and decoding system for a communication system having multi-antenna transmitter and multi-antenna receiver, comprising:

a feed unit receiving data and producing N data streams, where N is at least two;

N encoders, each encoder receiving a respective one of the N data streams and producing an encoded data stream;

a multiple input multiple output (MIMO) encoder receiving the N encoded data streams and encoding the N encoded data streams into M output data stream for transmission by M transmit antennas according to the double space time transmit diversity (DSTTD) algorithm, where M is at least two;

a multiple input multiple output (MIMO) decoder receiving T data streams from T receive antennas and decoding the T data streams into the N encoded data streams according to the double space time transmit diversity (DSTTD) algorithm;

N decoders, each decoder receiving a respective one of the N encoded data streams from the MIMO decoder and producing N decoded data streams;
and

a combiner combining the N decoded data streams into an output data stream.